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TRI VALVE BACKFLOW PREVENTER

The Tri Valve would be constructed of high strength Ductile Iron. It would consist of nuts, bolts, operating nut, steel resilient rubber, EPDM Elastomer coating on the sealing plastic mechanism of the closing gate valve which is operated with a valve key on the valve stem to allow 0 leakage. The Tri Valve would consist of three gates to be opened and shut as needed for backflow preventing contamination to existing potable drinking water pipelines.

The Tri Valve can be constructed by many Iron Works or Valve Manufacturing Assembly Companies throughout the United States of America.

The specified ingredients and components would be that of what a normal regular valve would be constructed of with the exception that the valve would be one main line valve with two side valves. The main valve is in the middle allowing the side valves to by-pass the middle valve when the middle valve is shut and the two side valves are open. The three valves are constructed as one piece. The Tri Valve can be constructed in various sizes as needed, per specification AWWAC509.

American Water Works Association gate valves would be 3" to 20" in diameter and meet or exceed the requirements of AWWAC509. Valves 24" or larger such as Butterfly valves shall meet or exceed the standards of AWWAC504. All valve construction shall conform to ASTM standards - American Society for Testing and Materials.

BACKGROUND OF TRI VALVE

The Tri Valve is intended to be installed onto an existing potable water main by means of a tapping sleeve, a cut-in tee, an existing stub out, an existing valve or such as to begin excavation to install a new water main for future use to residential or commercial developments potable water.

As an example a contractor or utility company would excavate down to an existing 12" water main with an existing 12" stub out tee or valve or install a 12" tapping saddle to core into existing 12" potable water line. Then you would install the 12" Tri Valve by whatever means there are to tie into in accordance with Federal, State and/or Local standards or specifications.

When tie in is completed, the Tri Valve 12" gate would be shut off, 12" x 6" Tri Valve. A Backflow Assembly with 2 check valves would be connected to the 2 - 6" valves on the side of the 12" x 6" Tri Valve. The Backflow Assembly is in use throughout the country for preventing contamination coming back into the potable water main pipes from irrigation, fire sprinkler or areas where water could backflow into existing water mains causing bacteria to contaminate potable water being used by the general public.

The Backflow Assembly installed to the Tri Valve would be just temporary. When all the new piping for water use is installed in a new development, the water main pipe gets pressure tested and bacteria tested to government set standards. After passing all requirements the Backflow Assembly would then be removed after the 2 - 6" side valves are shut off and plugged. Then the 12" valve on the Tri Valve can be opened and the water main can safely be used. During the construction of the new water main, the existing water main would have been protected from any source of contamination backflow.

The Backflow Assembly can be re-used at the next phase of the site or at another installation of a water main using the Tri Valve Backflow Preventer, using many types of pipe fittings such as bends or reducers.

The Backflow Assembly is installed to the Tri Valve above ground with 2 check valves and is temporarily used to fill new water mains for testing and on site use purposes.

To by-pass the main line valve, the Backflow Preventer is installed to the 2 side valves by means of 90° bends and pipe and fittings to the above ground assembly It can then be reused.

The Tri Valve can be used and manufactured in many sizes to meet the water demand of the area and needs of the population.

SUMMARY

As a Manatee County Construction Inspection Officer, I go to work sites on a daily basis. What is being implemented in Manatee County to protect the public drinking water during new water main construction is called a jumper system. The jumper system consists of installing a temporary backflow prevention system to a new water main valve leaving about an 8' separation and connecting it to the new water main pipe for on site water use. The temporary backflow preventer system is removed after all on site pipe installation is completed and passes all testing requirements. The problem with this is that the contractors excavate back down to the whole area of the existing valve and the new water main pipe and then remove the jumper system which causes all the water in the pipe to drain into the working hole. This causes hundreds of gallons of good clean drinking water to be wasted, leaving the valve and open pipe accessible to bacteria in the new water main. It defeats the purpose of chlorinating the inside of the pipes to be free of bacteria. Then a connection has to be made by way of a restrained ductile iron sleeve to connect the pipe to the valve to complete tie in and then the line has to be flushed out to get all the air out. This takes extra inspection hours, extra man hours, extra equipment hours, wasted large amounts of good water and no guarantee that the new water main is free of bacteria.

The Tri Valve eliminates these problems. The main valve would be opened after the 2 side valves would be closed and plugged. The water main would be sealed off from bacteria intrusion at all times. The cost of 1 valve versus a Tri Valve would be minimal compared to the amount of dollars spent on man hours and equipment. The # 1 concern should be the safety of the public drinking water.

The Tri Valve with the Backflow Preventer would insure no contamination from the new installed water main on the construction site. There would be two less joint sections in the pipe at the Tri Valve and the valve would be completely pressure tested and bacteria free.

To sum this all up the Tri Valve would save money, much needed water for Florida and other areas of the Country. Overall it is safe and practical and something that can be used everywhere for new and upgraded water mains. The 2 - 6" by-pass valves on the Tri Valve would also allow for fire protection on the construction site where fire hydrants are installed.